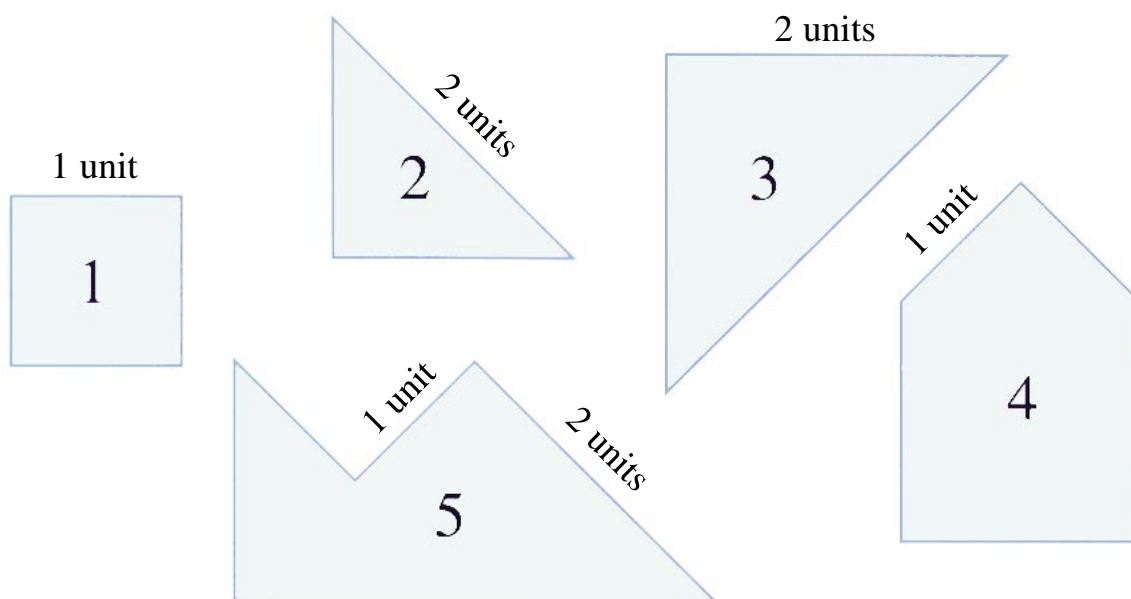


## Square Assembly

## Problem-of-the-Week

### The Problem

The five puzzle pieces shown below can be assembled to make a square. The lengths of some of the sides are given. All angles are either  $90^\circ$ ,  $45^\circ$ , or  $135^\circ$ . Construct copies of the pieces and assemble them to make a square.



### Strategies and Hints

1. The total area of the completed square is 9 times that of puzzle piece 1. Find a way to use pieces 1 and 5 so that together they will contain one side of the final square.
2. Show that it is impossible for the hypotenuse of puzzle piece 3 to be part of a side of the final square.
3. Which sides of puzzle piece 4 are good possibilities for parts of sides of the final square? Why?
4. Four of the puzzle pieces can be used to make a smaller square. Find this smaller square. What is its area?